Table of Contents

Tables

Figures

5.4 WATER RESOURCES

The affected environments for water resources are described in this section. Potential impacts are discussed in Section 5.4.2, cumulative impacts are discussed in 5.4.3, and Applicant-committed mitigation measures are presented in Section 5.4.4. Tables and figures are found at the end of this section.

5.4.1 Affected Environment

5.4.1.1 Introduction

The proposed SSU6 Project is located south of the Salton Sea. This region of the Imperial Valley is used mostly for agriculture and geothermal power production. Nine geothermal power plants are currently within 2 miles of the project area. The town of Niland is about 7.5 miles northeast, and the town of Calipatria is a little over 6 miles southeast of the project. The Sonny Bono National Wildlife Refuge (the Refuge) Headquarters is approximately 2,500 feet from the nearest well pad (Production Well Pad OB1). This section discusses the affected water resources for the SSU6 Project consisting of the following components: the Geothermal Plant Facility, Parking, and Construction Staging and Lay-down Areas; Production Well Pads; Injection Well Pads; Production Pipelines; Injection Pipelines; Transmission Lines; and Water Supply Line.

The proposed RPF, including all brine handling facilities from the production well heads, through the crystallizer/clarifier system, to the injection well heads, and the proposed PGF would be underlain by a common groundwater resource. The RPF includes 10 brine production wells, on five new production well pads, expected to be drilled to a depth of about 7,400 feet with casings set at a depth of about 2,625 feet, a brine crystallizer/clarifier system, and seven brine injection wells, on three new injection well pads, expected to be drilled to reach depths of between 8,500 and 8,800 feet, and cased to depths of 3,650 to 5,250 feet. In addition to the brine injection wells, one well dedicated for cooling tower blowdown, and one well dedicated for aerated brine from the brine pond will also be constructed with screened intervals of between 1,200 and 2,250 feet.

The RPF and the PGF will be designed to be self-sufficient with regard to water supply to the greatest extent practical. Condensed steam from the geothermal resource will provide make-up water for the cooling tower and dilution water for the RPF. Condensed steam will also be the source of scrubber wash water, and will be the source of seal water for the mechanical pump seals (the scrubber wash water and mechanical seal water supply is maintained in the purge water tank). Combined together, these will constitute over 95 percent of the facility's water needs on an annual average basis. Fresh water from the IID canal will provide the balance. The IID maintains an established canal water delivery system across the large agricultural areas in the Imperial Valley to distribute water from the Colorado River. Water from this canal will be directed through a RO system with treatment to supply the facility's potable water and service water systems including shower, eyewash equipment, wash basin water, toilets in crew change quarters, and sink water in the sample lab. It will also be the source of dilution water for the RPF. The IID canal water will also be used for fire water, for RPF and PGF cement slab washdown, for landscaping around the control building (via a small sprinkler/bubbler irrigation system), and for various non-potable applications in the control building and elsewhere in the facilities.

The following discussion presents an overview of the potentially affected water resources environment.

5.4.1.2 Regional Setting

The site would be located in the lowest part of a closed continental basin called the Salton Trough, a 3,100-square-mile structural depression near the San Andreas Fault system. The Salton Trough is the landward extension of the Gulf of California tectonic system, and is one of the few existing regions where continental crust is actively being rifted and then replaced by oceanic crust. The trough had previously been open to the ocean but became enclosed behind Colorado River delta to the south. Subsequent flooding of this enclosed basin by the Colorado River left a thick sequence of non-marine deposits. Magma emplacement along active rifting through the Salton Trough is the source of high-temperature hydrothermal systems including the Salton Sea Geothermal Resource that the proposed SSU6 Project facility would use. Active faulting within the Salton Trough has also created several moderate temperature low salinity geothermal systems.

Subsidence and seismicity monitoring in the Salton Sea Resource area indicate a northwest trending area of subsidence that has a maximum elevation decrease of about 15 mm per year. The general patterns of measured subsidence and seismicity are consistent with the natural regional activity in the Salton Trough.

5.4.1.3 Power Plant Facility

The proposed power plant facility will be located approximately 0.3 miles from the edge of the existing Salton Sea coastline. The facility site is also between two perennial water bodies that discharge to the Salton Sea, the New River, and the Alamo River. The New River is approximately 2.7 miles east of the facility site, while the Alamo River is approximately 4.8 miles southwest.

Alluvial and non-marine deposits underlie the facility area. The facility site is within the USGS cataloging unit, Salton Sea, 10255550, and then subsequently within the hydrologic unit (HU), Brawley, 723.10. HU 723.1 has an area of 1.324 million acres, and is contained within the southern portion of Imperial County south to the U.S.-Mexico border. A series of agricultural irrigation lateral supply canals and drains flow from south to north to the Salton Sea within and nearby the site location. Two irrigation drains, Vail Lateral Drain 4a and Vail Lateral Drain 5, drain to the Salton Sea and are on the east and west sides of the project site, respectively. All drainage from the area of the project site drains toward Salton Sea. Figures 5.4-1A through 5.4-5E display the general site location as it relates to adjacent surface waters.

The SSU6 Project site is in an arid environment and, based on a rain gauge approximately 26 miles south of the site (in El Centro), receives less than 3 inches of precipitation annually. The average monthly precipitation based on 52 years worth of data is provided in Table 5.4-1.

Table 5.4-2 provides the annual precipitation for the past 10 years with the highest recent annual precipitation of 7.7 inches and the lowest of 0.3 inches.

The Imperial County General Plan indicates that the project site is in an area inside the 100-year floodplain. The site is within Federal Emergency Management Agency (FEMA) Zone A, which

is considered an area within the 100-year floodplain and Zone D, which is considered an undetermined, but possible, flood hazard zone (FEMA, 1984)

Groundwater in the upper Coachella Valley occurs in a thick sequence of Cenozoic-age alluvial sediments that overlie a pre-Tertiary age basement complex. These sediments, consisting primarily of sand and gravel, form the aquifers in the project area. Faulting in the valley has offset these sediments creating barriers to groundwater flow. Based on these fault barriers and their effect on the groundwater flow, the valley is divided into four groundwater sub-basins. The SSU6 Project site overlies the Garnet Hill Sub-Basin. The aquifer-bearing alluvial sediments beneath the proposed SSU6 Project area reportedly include:

- A lower sequence of mostly non-marine Tertiary age sedimentary rocks;
- A middle unit of Miocene- or Pliocene-age marine sedimentary rocks, the Imperial Formation; and
- An upper lacustrine sequence of mostly non-marine Pliocene or Quaternary age deposits that comprises the main aquifer beneath the Imperial Valley. These deposits have locally been intruded by rhyolitic magma that is the heat source of the geothermal reservoir to be used by the SSU6 Project.

The upper sequence is typically several thousands of feet thick and consists primarily of clay, silt and some sand that have been subdivided into the Borrego and Brawley Formations and the overlying deposits of Lake Cahuilla. This upper sequence includes shallow aquifers that are recharged predominantly by imported Colorado River water used for agricultural irrigation that discharges to the Salton Sea, and much deeper groundwater including the Salton Sea Geothermal Field that may contain moderately altered connate ocean water.

5.4.1.3.1 Surface Water Resources

The three major water bodies near the proposed facility include the Salton Sea, the New River, and the Alamo River. The two adjacent irrigation and drainage systems, Vail Lateral 4a and Vail Drain 4a, and Vail Lateral 5 and Vail Drain 5, also currently maintain flow based on irrigation practices.

The level of the Salton Sea is approximately 240 feet below sea level. Flow into the Salton Sea is primarily fed by irrigation drainage water via surface water flows and ground water percolation. Storm water runoff also contributes to the Salton Sea during the rainy season. Levels of the Salton Sea increase during periods of peak irrigation water usage, but overall levels of the Salton Sea are decreasing.

The New and Alamo Rivers are both perennial streams with headwaters starting in Mexico. Both the New and Alamo Rivers convey predominantly agricultural irrigation drainage and some treated wastewaters. The New River also receives a considerable portion of untreated wastewater flows from Mexicali, Mexico. Irrigation water is imported from the Colorado River.

There are USGS gauges on both rivers near the proposed facility. USGS gauge 10254670, on the Alamo River near Calipatria, has recorded flow data since 1972. USGS gauge 10255550, on the New River near Westmorland, has recorded flow data since 1952. These approximate gauge locations are shown in Figures 5.4-1A through 5.4-5.E Table 5.4-3 provides mean monthly flows as reported for both rivers via existing gauging data.

5.4.1.3.2 Groundwater Resources

The amount of usable near-surface groundwater in the central Imperial Valley is unknown, but this resource has not been significantly exploited because of low well yields and poor chemical quality. The upper 500 feet of fine-grained deposits in the central portion of the Imperial Valley are estimated to have a transmissivity of less then 10,000 gallons per day. Even lower permeabilities are estimated to occur at greater depths (Westec, 1981), and low vertical permeability inhibits mixing of waters from different depths such as between the shallow aquifer system and underlying deeper groundwater that includes the geothermal resources.

The main source of groundwater recharge to the shallow aquifer system, and likely to a lesser extent the deeper aquifer, is imported Colorado River water that seeps from canals and is applied as irrigation to cultivated area. Shallow groundwater, ranging in depths from about 5 to 20 feet, is drained by an extensive network of ditches and drains in agricultural areas and also discharges into the Alamo and New Rivers that drain toward the Salton Sea.

The shallow groundwater gradient beneath the proposed SSU6 Project area appears to mimic that of the overlying surface topography, and is reported to generally flow toward the axis of the Imperial Valley, and then northward to the Salton Sea (Westec, 1981). At depths of between 100 and 200 feet, the average groundwater gradient has been estimated at about 28 feet per mile toward the west near Niland and about 9 feet per mile toward the northeast near Calipatria. The main source of ground water recharge in both of these areas is suspected to be seepage from the East Highline and Coachella Canals. Historical records of water wells completed at relatively shallow depths of about 100 to 150 feet are reported to indicate an upward vertical movement of groundwater near the Salton Sea (Westec, 1981). This condition is consistent with discharge of groundwater from these depths toward the Salton Sea. Groundwater discharge from the Imperial Valley into the Salton Sea has been estimated to be about 2,000 afy (U.S. Department of Interior and Resource Agency for California, 1974).

The amount of water in the deep aquifer has been estimated at 1.1 billion to 3 billion acre-feet, and the total recoverable water has been estimated to be about 20 percent of the total. The deep aquifer is recharged with about 400,000 acre-feet of water per year. Some of the deepest groundwater in this aquifer system is believed to be moderately altered residual ocean water. Above this may be relatively fresh residual water of low to moderate salinity from prehistoric lakes that had filled the Salton Trough. Water in the upper portion of the deep aquifer is high temperature and locally of high salinity.

5.4.1.3.3 Surface Water Quality

The beneficial use designations for surface water bodies as specified by the RWQCB are listed below.

Salton Sea:

- Aquaculture
- Industrial Service Supply (potential)
- Water Contact Recreation
- No-Contact Water Recreation
- Warm Fresh Water Habitat

- Wildlife Habitat
- Preservation of Rare, Threatened, or Endangered Species

All American Canal System:

- Municipal and Domestic Supply
- Agricultural Supply
- Aquaculture
- Freshwater Replenishment
- Industrial Service Supply
- Ground Water Recharge
- Water Contact Recreation
- Non-Contact Water Recreation
- Warm Fresh Water Habitat
- Wildlife Habitat
- Hydropower Generation
- Preservation of Rare, Threatened, or Endangered Species.

Alamo River, New River, and Imperial Valley Drains including the Vail Drains:

- Freshwater Replenishment
- Water Contact Recreation
- Non-Contact Water Recreation
- Warm Fresh Water Habitat
- Wildlife Habitat
- Preservation of Rare, Threatened, or Endangered Species.

Additionally, the New River has designated potential beneficial use for industrial supply purposes, and the Alamo River has potential beneficial use for hydropower generation. Finally, it should be noted that water contact is unauthorized in the Vail Drains and the New River is unfit for any recreational use because of contamination.

The Salton Sea has a history of water quality issues associated with increasing salinity and nutrient concentrations. The New and Alamo Rivers both drain from the south from Mexico, through agricultural lands of the Imperial Valley and discharge to the Salton Sea, and also have histories of poor water quality. The Clean Water Act (CWA) section 303(d) requires the state to list waterbodies not meeting water quality under certain CWA conditions. The New River is listed for bacteria, nutrients, pesticides, and sedimentation/siltation, while the Alamo River is listed for pesticides, sedimentation/siltation, and selenium. The sources of pollutants are all designated as agricultural runoff. The Salton Sea is listed under 303(d) for nutrients, salinity, and selenium with sources designated as agricultural return flows.

5.4.1.3.4 Groundwater Quality

The SSU6 Project site is in the Imperial Hydrologic Unit (Area Code 723.00) of the Imperial Valley Planning Area (Regional Water Quality Control Board [RWQCB], 1994). The Imperial

Valley Planning Area encompasses about 2,500 square miles. Groundwater in the Imperial Hydrologic Unit has designated beneficial use for industrial supply purposes. Additionally, a small portion of the groundwater in this hydrologic unit is also designated as having beneficial use for municipal purposes. However, based on the Sources of Drinking Water Policy (State Water Resources Control Board [SWRCB] Res. No. 88-63), groundwater is exempted from municipal beneficial use designation if total dissolved solids (TDS) exceed 3,000 mg/l and it is not reasonably expected by the Regional Water Quality Control Board to supply a public water system, or the aquifer is regulated as a geothermal producing source.

Because low vertical permeabilities inhibits mixing of waters from different depths, the quality of water in the upper sequence of deposits that comprises the main aquifer beneath the Imperial Valley varies locally from fresh to saline. For example, relatively shallow wells west of the Alamo River typically have water of very poor chemical quality while artesian wells east of the Alamo River can yield relatively good quality water with TDS content of 1,000 to 2,000 mg/l.

Historical records indicate relatively shallow groundwater that was tapped by drains, was of a sodium chloride type with high TDS (15,700 mg/l) and salinity ascribed to evaporation of shallow groundwater. Deeper waters were also found to be sodium chloride in nature, but had lower TDS (1,500 to 1,600 mg/l) and salinity.

5.4.1.4 L-Line Interconnection

The water resources affected environment associated with the proposed L-Line Interconnection is the same as the power plant facility described in Section 5.4.1.3.

5.4.1.5 IID Midway Interconnection

The water resources affected environment associated with the proposed IID Midway is the same as the power plant facility described in Section 5.4.1.3.

5.4.1.6 Production and Injection Well Pads

The water resources affected environment associated with the area of the proposed Production and Injection Well Pads is the same as those associated with the power plant facility described in Section 5.4.1.3.

5.4.1.7 Production and Injection Pipelines

The water resources affected environment associated with the area of the proposed Production and Injection Pipelines is the same as those associated with the power plant facility described in Section 5.4.1.3.

5.4.1.8 Water Supply Pipeline

The water resources affected environment associated with the proposed Water Supply Pipeline is the same as those associated with the power plant facility described in Section 5.4.1.3.

5.4.2 Environmental Consequences

Appendix G of the California Environmental Quality Act (CEQA) identifies the following criteria for determining significance:

- Does the project violate water quality standards or waste discharge requirements?
- Does the project substantially deplete groundwater supplies or interfere with groundwater recharge?
- Does the project substantially alter existing drainage patterns, resulting in substantial increase in erosion or surface runoff and causing flooding?
- Does the project create or contribute to runoff that exceeds drainage system capacity?
- Does the project otherwise substantially degrade water quality?
- Does the project place housing within a 100-year flood hazard area?
- Does the project impede or redirect flood flows within a 100-year flood hazard area?
- Does the project expose people or structures to significant risk of loss, injury, or death from flooding?
- Does the project contribute to inundation by seiche, tsunami, or mudflow?

5.4.2.1 Plant Facility

5.4.2.1.1 Construction-Related Impacts

Based on a conservative assumption of using five 500-gallon water trucks per day for 250 days of construction per year, it is estimated that approximately 2,500 gallons per day (2 acre-feet per year [afy]) of water will be used for dust control and other construction related activities. This water would be supplied by the IID system. The IID has indicated that this water would be available and construction of the Project is not expected to significantly impact water availability.

Potential impacts to water resources during construction of the SSU6 Project Plant Facility include sediment-laden storm water runoff and potential contamination of surface waters by accidental spills of hazardous materials. Potentially minor releases to the shallow aquifer system during construction of the SSU6 Project will be avoided by the implementation of Best Management Practices (BMPs). Construction and operational activities will be performed in accordance with the California National Pollution Discharge Elimination System (NPDES) General Permit for the Discharge of Storm Water Associated with Construction Activity, and the California NPDES General Permit for the Discharge of Storm Water Associated with Industrial Activity. The NPDES General Permit for the Discharge of Storm Water Associated with Construction Activity would include development of a Storm Water Pollution Prevention Plan (SWPPP) that will implement measures to control erosion, sedimentation and release of contaminated runoff. The NPDES General Permit for the Discharge of Storm Water Associated with Industrial Activity would address potential stormwater runoff of water quality constituents specifically related to the industrial activity, and specify BMPs to control pollutant runoff.

An erosion control plan will be used at the site during the construction phase to control sediment-laden runoff and ensure the integrity of the storm water collection system during construction. The plan will use control measures, as necessary, such as grass-covered swales and ditches, stabilized construction entrances, gravel-covered construction lay down area, silt fencing, and seeding of the disturbed area). Specifically, runoff from all affected areas will be diverted to the erosion control measures before discharging off site.

Upon completion of the project, areas disturbed by construction will be stabilized. After sediment removal and stabilization of the site, all construction sediment control measures will be removed. Therefore, potentially significant impacts to water resources during construction of the SSU6 Project plant facility are not anticipated.

5.4.2.1.2 Operation-Related Impacts

The operation of the SSU6 Project would use approximately 293 afy of IID canal water. The IID has indicated that this water is available. Additionally, the SSU6 Project would convert approximately 173 acres of agricultural land to industrial use. Currently, approximately 5 afy per acre of IID canal water is delivered to the project site for agricultural irrigation, or about 865 afy for 173 acres. Based on current project design, the SSU6 Project would result in a savings of approximately 572 afy of IID irrigation water.

It should be noted that these water requirement estimates are based on a project design case of 23.5 percent salinity in the brine, as shown in Table 3.1-1. However, the salinity of the brine may vary, in which case water demand could vary accordingly. In the very unlikely event that the salinity reaches the maximum of 25.0 percent, the corresponding water demand could reach 987 afy. Although these conditions are not expected, IID has indicated that adequate water is available to serve the project under these conditions (see Attachment 1). The IID has approved a water supply agreement under which the Applicant would pay a higher rate for water usage above agricultural levels to fund IID water conservation projects. Consequently, the SSU6 Project would not result in a significant impact to water availability.

After completion of the SSU6 Project plant facility, releases from the RPF, including the clarifier and brine collection ponds, could potentially impact the quality of the local water resources. The SSU6 Project will include two 770-foot x 90-foot x 10-foot-deep brine ponds. Under normal operating conditions, the brine would be discharged directly into the injection wells. However, during upset conditions, production brines would be discharged into the brine ponds. The chemical constituents expected in the brine fluids are shown on Table 5.4.4. The ponds would be of earth construction and lined with an HDPE liner and concrete. Monitoring wells will be placed at the periphery of the ponds. The ponds would be designed in accordance with Title 27, Division 2 of the California Code of Regulations (CCR) – Special Requirements for Surface Impoundment and permitted as a waste management unit (WMU) by the RWQCB. A release from these ponds or their associated systems could impact water resources by infiltrating into the underlying groundwater system and migrating overland toward the Salton Sea. However, because these ponds will be concrete and HDPE lined with the goal of preventing their contents from leaching into the soil, potentially significant impacts to water resources during operation of the ponds is not anticipated.

Reject water from the RO system would be discharged to a brine pond at an approximate rate of 720 gpd. The water quality associated with the RO reject water is provided in Table 5.4-4.

5.4.2.1.3 Flood-Related Impacts

The site facility is within the 100-year flood zone. A 100-year storm event could impact the site facility. The entire site will be enclosed by an 8-foot high perimeter berm constructed with 2:1 (horizontal:vertical) sloping sides to protect the plant from flooding. Therefore, potentially significant flood-related impacts to the SSU6 Project are not anticipated.

5.4.2.1.4 Storm Water Related Impacts

Storm water runoff could result in erosion and sediment deposition, and water quality impacts. The SSU6 Project site facility within the bermed area will be graded to direct surface water runoff toward the northwest corner of facility toward a constructed earthen detention basin. The detention basin will be designed for 3 inches of precipitation in a 24-hour period (100 year storm conditions). Storm water flows will be directed to the detention basin via ditches, swales and culverts. Storm water flows from areas of the facility with potential for oil contamination will be directed to an oil/water separator before discharge into the detention basin. Therefore, potentially significant storm water related impacts from the site are not anticipated. Regulatory requirements for storm water during SSU6 Project operations will be guided under the NPDES Industrial Permit. Because the detention basin is designed not to discharge under a 100-year storm condition, a separate NPDES permit is not required.

5.4.2.2 Transmission Lines

5.4.2.2.1 Construction-Related Impacts

Potentially significant impacts to water resources during construction of the L-Line Interconnection are not anticipated. Potentially minor erosion-related or hazardous materials related impacts to water resources during construction of the L-Line Interconnection will be mitigated by the implementation of BMPs during its construction. Construction activities will be performed in accordance with the California NPDES General Permit for the Discharge of Storm Water Associated with Construction Activity.

5.4.2.2.2 Operation-Related Impacts

Operation, including maintenance of the L-Line Interconnection is not anticipated to impact water resources.

5.4.2.3 Production and Injection Well Pads

5.4.2.3.1 Construction-Related Impacts

During drilling activities to install both the brine production and injection wells, it is anticipated that drilling fluids will be introduced into the boreholes to lubricate and cool the drilling string,

flush out drill cuttings and promote borehole stability. These fluids typically contain relatively inert additives to increase the density of the fluid to facilitate flushing of drill cuttings, promote borehole stability, and if necessary, to seal pores to inhibit fluid loss into the surrounding country rock. Additionally, by virtue of their designed nature, drilling fluids carry drill cuttings and can acquire chemical components of the penetrated material. Although the target depths of both the brine production and injection wells are much deeper than the relatively shallow overlying aquifer, there is the potential for drilling fluids to impact the groundwater aquifer system. However, with implementation of BMPs and engineering controls, including casing shallow portions of the production and injection wells, potential impacts to the quality of relatively shallow groundwater during construction of production and injection well pads are not anticipated.

5.4.2.3.2 Operation-Related Impacts

After the brine production and injection wells are completed, geothermal fluids would be delivered from relatively deep production depths (7,400 feet) through overlying material including other shallower aquifers to the surface and then, after clarifying treatment and power production, heat-depleted brines would be re-injected at greater depths than they were originally extracted. Without proper controls, the produced and re-injected fluids have the potential to impact the quality of groundwater in the relatively shallow aquifer systems these wells penetrate. However, with implementation of engineering controls, including casing shallow portions of the production and injection wells, significant impacts to groundwater during operation of production and injection well pads is not anticipated.

Drainage network and water supply canals rely on gravity induced flow and have little tolerance for topographic change. If significant land subsidence occurred because of extraction of geothermal brines, this could have potentially serious impacts to surface water drainage patterns. The re-injection of brine would minimize land subsidence and impacts to surface water flows are expected to be less than significant.

5.4.2.4 Production and Injection Pipelines

5.4.2.4.1 Construction-Related Impacts

Potentially significant impacts to water resources during construction of the production and injection pipelines are not anticipated. The impact to water resources via erosion, sedimentation or release of construction related materials during construction of the pipeline would be mitigated by the implementation of Best Management Practices specified in the SWPPP. Construction activities will be performed in accordance with the California NPDES General Permit for the Discharge of Storm Water Associated with Construction Activity.

5.4.2.4.2 Operation-Related Impacts

The quality of water transported in the production pipelines is anticipated to be similar to the composition summarized in Table 3.3-1. The quality of water in the injection pipelines is summarized in Table 3.3-2. Any release from these pipelines would have the potential to impact

shallow ground water or nearby surface waters. Mitigation measures include a protective pipeline design, a detailed inspection routine, preparation of a release response plan, and expeditious containment, control, and cleanup of released liquids. These mitigation measures would reduce potential impacts to water resources, during operation of the pipelines, to less than significant.

5.4.2.5 Water Supply Pipeline

5.4.2.5.1 Construction-Related Impacts

Potentially significant impacts to water resources during construction of the water supply pipeline are not anticipated. The impact to water resources via erosion, sedimentation or release of construction related materials during construction of the pipeline would be mitigated by the implementation of Best Management Practices specified in the SWPPP. Construction activities will be performed in accordance with the California NPDES General Permit for the Discharge of Storm Water Associated with Construction Activity.

5.4.2.5.2 Operation-Related Impacts

Operation of the water supply pipeline is not anticipated to have the potential to significantly impact the quality of underlying water resources. Surface water effects, additionally, are not anticipated to have a significant impact. Intake quantities will be allocated based on IID. IID has confirmed the availability of water and approved a water supply agreement to provide the required water for the facility operations. RO wastewater will be discharged to the brine pond and will ultimately be discharged into an injection well. The impact from RO wastewater being reinjected will be similar to that of the general injection of brine waters.

5.4.3 Cumulative Impacts

The projects included in this cumulative impacts assessment are presented in Section 5.17. Potential cumulative impacts to groundwater resources are primarily related to depletion of the power producing geothermal reservoir and surface subsidence resulting from brine withdrawal from the proposed site and currently existing geothermal power-generating facilities in the area. With the re-injection of spent brine into the geothermal resource area, cumulative impacts are not expected to be significant.

Cumulative impacts to surface waters are not anticipated. The volume of water to be withdrawn from the canal (293 afy) is less than the volume of water currently used for agricultural irrigation (865 afy). Therefore, the project would not adversely impact water demand. Additionally, there are no continuous or periodically scheduled releases to surface waters; therefore, cumulative impacts are not anticipated.

5.4.4 Mitigation Measures

This section presents Applicant-committed mitigation measures that will be implemented to reduce impacts to the water resource by the SSU6 Project.

5.4.4.1 Power Plant Facility

The brine ponds will be designed in accordance with 27 CCR – Special Requirements for Surface Impoundments. Additionally, in accordance with RWQCB regulations, monitoring wells will be placed on the periphery of the ponds to detect potential releases from the brine ponds to groundwater. Finally, to protect the plant from flooding, the entire site would be enclosed by an 8-foot high perimeter berm. This height is designated to meet the 220-foot-below-sea-level elevation in County Flood Control requirements. Storm water runoff will be collected in a detention basin in the northwest portion of the facility. The detention basin will be designed for 3 inches of precipitation in a 24-hour period (100-year storm conditions). Best Management Practices will be developed and implemented for construction, post-construction, and operational phases of the proposed power plant facility, in accordance with the California NPDES General Permit for Storm Water Discharge Associated with Construction Activity, with the California NPDES General Permit for Storm Water Discharges Associated with Industrial Activities, and with other laws, ordinances, regulations, and standards (LORS) as applicable.

These mitigation measures are summarized below:

- **Water-1:** The crystallizer/clarifier system brine ponds will be lined and at least 5 feet of separation between the base of the brine pond and the highest water elevation established in accordance with the requirements specified in 27 CCR-Special Requirements for Surface Impoundments.
- **Water-2:** Monitoring wells will be installed at the periphery of the brine ponds and these wells will be monitored to assess potential releases to groundwater, in accordance with requirements established in CA Water Code 1300-14957, and the CA Porter-Cologne Water Quality Control Act.
- **Water-3:** Perform construction activities according to the SWPPP and associated Monitoring Program, which will be required for the project according to California's General Storm Water Permit for Construction Sites under the U.S. EPA's NPDES Program; the SWPPP will include Best Management Practices for controlling pollutants in Storm Water Discharges during construction activities.
- **Water-4:** Operate the SSU6 power plant facility in accordance with the SWPPP, monitoring, and reporting requirements, which will be required for the Project according to California's General Storm Water Permit for Industrial Sites under the U.S. EPA's NPDES Program; the SWPPP will include Best Management Practices for mitigation, the release of pollutants from operational activities to storm water discharges.

5.4.4.2 Production and Injection Well Pads

As for the proposed power plant facility, Best Management Practices will be developed and implemented for construction, post-construction, and operational phases, in accordance with the California NPDES General Permit for Storm Water Discharge Associated with Construction Activity, with the California NPDES General Permit for Storm Water Discharges Associated with Industrial Activities, and with other LORS as applicable. Best Management Practices during construction will include measures that ensure maintaining the integrity of the drilling fluid handling systems, and runoff.

Potential impacts to the quality of relatively shallow groundwater will also be mitigated by engineering controls consisting of casing shallow portions of the production and injection wells. As boreholes are advanced during well installation, they will be lined with casing that will minimize the potential for release of both construction-related drilling fluids and production-related geothermal brines to the shallow groundwater aquifer. These mitigation measures are summarized below:

- **Water-5:** Best Management Practices will be developed and implemented for construction, post-construction, and operational phases to maintain the integrity of the drilling fluid handling systems, and run-off.
- **Water-6:** Line upper portions of boreholes with casing to minimize potential release of both construction-related drilling fluids and production-related geothermal brines to the shallow groundwater aquifer.

5.4.4.3 Production and Injection Pipelines

To mitigate potential releases from the production and injection pipelines, they will be constructed of concrete lined carbon steel. Additionally, to minimize potential releases, at each wellhead the pipelines would be equipped with alloy isolation valves on both sides of an alloy emergency shut-off valve. These mitigative measures are summarized below:

- **Water-7:** Production and injection pipelines will be constructed of polymer concrete-lined carbon steel to prevent potential releases.
- **Water-8:** Pipelines at each production wellhead will be equipped with alloy isolation valves on both sides of an alloy emergency shut-off valve to prevent potential releases.

5.4.5 Applicable Laws, Ordinances, Regulations, and Standards

The following LORS are applicable or potentially applicable to the proposed project. Table 5.4-5 summarizes the LORS and Table 5.4-6 provides a list of agency contacts.

5.4.5.1 Federal Authorities and Administering Agencies

Clean Water Act of 1977 (including 1987 amendments) §402, 33 USC §1342; 40 CFR Parts 122 - 136. The Clean Water Act requires an NPDES permit for any discharge of pollutants from a point source to waters of the United States. This law and its regulations apply to storm water and other discharges into waters of the United States. The Clean Water Act requires a general construction

activity permit for discharge of storm water from construction sites disturbing 5 acres or more. The State of California Water Resources Control Board administers this federal permit requirement.

The administering agencies for the above regulation are the RWQCB Colorado River Basin Region 7, and the USEPA, Region IX.

Best Management Practices would be developed and implemented for construction, post-construction, and operational phases, in accordance with the California NPDES General Permit for Storm Water Discharge Associated with Construction Activity, with the California NPDES General Permit for Storm Water Discharges Associated with Industrial Activities. Construction activities at the power plant site would be performed in accordance with a SWPPP and associated Monitoring Plan that would likely be required for the project in accordance with the State of California's NPDES General Permit for Storm Water Discharges Associated with Construction Activity.

Clean Water Act §311; 33 USC §1321; 40 CFR Parts 110, 112, 116, 117. Requires reporting of any prohibited discharge of oil or hazardous substance.

A Hazardous Materials Business Plan (HMBP) would be prepared for the SSU6 Project that includes measures to manage materials and respond to discharge. Additional details of the HMBP are provided in Section 5.14 of the AFC.

Clean Water Act §401, Waiver of Discharge Requirements. Requires the Applicant to obtain certification that discharges will comply with the Clean Water Act.

The administering agency for this regulation is the RWQCB Colorado River Basin Region 7.

The SSU6 Project would comply with this requirement by applying to the RWQCB for a 401 certification.

Clean Water Act §404. Federal Regulatory Programs 33 CFR Parts 323 and 328. Requires the Applicant to coordinate with U.S. Army Corps of Engineers for any dredging or filling of wetlands or navigable waterways of the U.S.

The administering agency for this requirement is the U.S. Army Corps of Engineers.

The SSU6 Project would comply with this requirement through coordination with the U.S. Army Corps of Engineers as needed.

5.4.5.2 State Authorities and Administering Agencies

The California Safe Drinking Water and Toxics Enforcement Act (California Health & Safety Code 25249.5 et seq.). Prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity.

The administering agency for the above regulation is the RWQCB Colorado River Basin Region 7.

The project would comply with the regulations established in this Act.

California Constitution, Article 10 §2. This article prohibits the waste or unreasonable use of water, and regulates the method of use and method of diversion of water.

The administering agency for the above regulation is the State Water Resources Control Board.

The source of cooling water would be derived from condensate generated on site. Brine wastewater that will be injected may be diluted with IID water from the Vail Lateral. Overall, the project would use an equal or decreased amount of IID water than is currently being used for agricultural purposes, thus complying with the State constitution.

State Water Resources Control Board, Resolution 75-58 (June 18, 1975). The resolution prescribes state water quality control policy on the use and disposal of inland water used for power plant cooling.

The administering agencies for the above regulation are the State Water Resources Control Board and the CEC.

Cooling tower blow down would be discharged into a dedicated injection well. The project would comply with the regulations established in this resolution.

The California Porter-Cologne Water Quality Control Act 1998; California Water Code §13000 - 14957; Division 7, Water Quality. The code requires adequate protection of all waters of the state. Discharge of waste must comply with the groundwater protection and monitoring requirements of Resource Conservation and Recovery Act (RCRA). Discharge of waste earthen material into surface waters resulting from land disturbance may require the filing of a report of waste discharge (Water Code §13260[a]) and provides for the issuance of waste discharge requirements with respect to the discharge of any waste that can affect the quality of the waters of the state.

The administering agencies for the above regulation are the CEC, State Water Resources Control Board, and the Regional Water Quality Control Board, Colorado River Basin, Region 7.

The project would develop an Erosion Control Plan and a SWPPP to address surface water pollution from project area runoff, during construction and operational phases of the project. The project would implement Best Management Practices to protect groundwater quality, including installation of well casing in production and injection wells, installation of monitoring wells around brine ponds, and lining brine ponds with concrete.

California Water Code §13260 - 13269; 23 CCR Chapter 9. The code requires the filing of a report of waste discharge and provides for the issuance of waste discharge requirements with respect to the discharge of any waste that can affect the quality of the waters of the state. The waste discharge requirements will serve to enforce the relevant water quality protection objectives of the RWQCB's Region 7 Water Quality Control Plan and federal, technology-based effluent standards applicable to the proposed SSU6 Project. Regarding potential water pollution from construction activities, the waste discharge requirements may incorporate requirements based on the Clean Water Act §402(p) and implementing regulations at 40 CFR Parts 122 seq., as administered by the RWQCB, Colorado River Basin Region 7.

The administering agency for the above regulation is the RWQCB, Colorado River Basin Region 7.

A SWPPP would be prepared for review and approval by the RWQCB. The project would comply with the appropriate sections of the California Water Code.

California Water Code §§13271 - 13272; 23 CCR §§2250 - 2260. These code sections require reporting of releases of specified reportable quantities of hazardous substances or sewage (§13271)

and releases of specified quantities of oil or petroleum products (§13272), when the release is into, or where it will likely discharge into, waters of the state. For releases into or threatening surface waters, a "hazardous substance" and its reportable quantities are those specified at 40 CFR §116.5, pursuant to §311(b)(2) of the Federal Clean Water Act, 33 USC §1321(b)(2). For releases into or threatening ground water, a "hazardous substance" is any material listed as hazardous pursuant to the California Hazardous Waste Control Act, Health & Safety Code §§25100 - 2520.24, and the reportable quantities are those specified at 40 CFR Part 302.

The administering agencies for the above regulation are the RWQCB, Colorado River Basin Region 7, and the California Office of Emergency Services.

Although such releases are not anticipated, if necessary, the project would comply with the reporting requirements.

California Public Resources Code §25523(a); 20 CCR §§1752, 1752.5, 2300 - 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1). The code provides for the inclusion of requirements in the CEC's decision on an AFC to assure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection.

The administering agency for the above regulation is the CEC.

This project could have potentially significant impacts to water resources. As discussed in Section 5.4.2, mitigation measures would be implemented to address potential significant issues.

California Environmental Quality Act, Public Resources Code §21000 et seq.; CEQA Guidelines, 14 CCR §15000 et seq.; Appendix G. The CEQA Guidelines (Appendix G) contain definitions of projects that can be considered to cause significant impacts to water resources.

The administering agency for the above regulation is the CEC.

This project could have potentially significant impacts to water resources. As discussed in Section 5.4.2, mitigation measures would be implemented to address potential significant issues.

CCR, Title 14, Division 2, Subchapter 4, Statewide Geothermal Regulations § 1931-§1932; §1937.1. This subchapter set forth the rules and regulations governing the geothermal regulation program of CDOGGR as provided for by Chapter 4 (Sections 3700-3776), Division 3, of the Public Resources Code. This code establishes requirements for drilling, constructing, and operating geothermal production and injection wells in a manner to protect or minimize damage to the environment, usable ground waters (if any), surface water, geothermal resources, life, health and property.

The administering agency for the above regulation is CDOGGR.

The SSU6 Project would comply with the appropriate rules and reporting requirements of this regulation.

CCR, Title 27, Division 2, Subdivision 1, Consolidated Regulations for Treatment, Storage, Processing or Disposal of Solid Waste. This subdivision sets forth standards to protect public health and safety and the environment. Chapter 3 of Subdivision 1 identifies siting criteria for WMUs, including surface impoundments. This code establishes that WMU must comply with applicable SWRCB design requirements and RWQCB waste discharge requirements (WDR). Articles 2040 and

20310 establish specific design requirements, including at least 5 feet of separation between the base of the WMU and the highest anticipated elevation of the underlying water and liner criteria.

The administering agency for the above regulation is the RWQCB, Colorado River Basin Region.

The SSU6 Project brine ponds are classified as WMUs. The design and operation of these brine ponds will comply with the appropriate sections of this code.

California Public Resources Code, Division 3, Chapter 4, §3700-3776. This code establishes requirements for drilling, constructing, and operating geothermal production and injection wells. This code sets standards for geothermal exploration and development that protect geothermal resources and prevent damage to underground and surface waters suitable for irrigation or domestic purposes from the drilling, operation, maintenance, and abandonment of geothermal wells. For the purpose of CEQA (commencing with Section 21000), this code establishes the CDOGGR as the lead agent however the CDOGGR can delegate its authority to the County, if appropriate. The permit and reporting requirements set forth in this code are consistent with those described in CCR, Title 14, Division 2, Subchapter 4, Statewide Geothermal Regulations § 1931-§1932; §1937.1.

The administering agency for the above regulation is the CDOGGR.

The SSU6 Project would comply with the appropriate rules and reporting requirements of this regulation.

5.4.5.3 Local Authorities and Administering Agencies

The following policies are to ensure the availability of an adequate and safe water supply and to ensure the maintenance of high quality water in water bodies and aquifers.

Imperial County Land Use Code, Title 9, Division 3, Chapter 1, Section 90301.02. This section requires that a plan for disposal of all onsite surface drainage water must be submitted to, and approved by, the Imperial County Department Planning/Building Department and the Imperial County Department of Public Works prior to issuance of a Grading Permit.

The administering agencies for the above regulation are the Imperial County Planning/Building Department and the Imperial County Public Works Department.

The project would submit grading and drainage plans and a permanent storm water drainage plan.

Imperial County Land Use Code, Title 9, Division 10, Chapter 10, Sections 91010.01 91010.02. This is the County's grading ordinance that incorporates regulations pertaining to excavation, grading, and construction. This section of the Code also identified procedures and requirements for applying for a construction permit.

No person, firm, association, corporation or organization except public entities and their officers, employees or contractors who are performing work within publicly owned rights-of-way, shall, within the unincorporated territories of the County of Imperial, do any grading, excavation or earthwork construction without having first obtained a permit therefore from the County Engineer.

Application for a permit must include drainage systems, protective devices, and existing and proposed elevations. Item 2 of the Permit Conditions establishes that the depth of grading, excavation, or earthwork will not preclude the use of drain tile in irrigated lands; and Item "3"

establishes that grading, excavation, or earthwork construction cannot extend below the water table of the immediate area.

The administering agency for the above regulation is the Imperial County Planning/Building Department. However, the AFC process supplants local permits.

The Applicant would prepare the information required in a grading permit application and comply with the ordinance requirements.

Imperial County Land Use Code, Title 9, Division 16, Chapter 3, Section 91603.00, Chapter 4, Section 91604.00. Chapter 3 establishes that this ordinance applies to all areas of special flood hazards (including lands around the Salton Sea and lying at or below the –220 foot elevation contour) within the jurisdiction of Imperial County. Chapter 4 identifies development permit requirements for special flood hazard areas. Application for a Development Permit shall be made on forms furnished by the Floodplain Administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage or materials, drainage facilities; and the project location.

The administering agency for the above regulation is the Imperial County Planning/Building Department, Floodplain Administrator. However, the AFC process supplants local permits.

The project would apply for a Development Permit. Proposed drainage facilities for storm water runoff and flood overland flow would be submitted for review and approval.

Imperial County Land Use Code, Title 9, Division 17, Chapter 1, Section 91701.01; Section 91701.05; Chapter 2, Section 91702.00; Section 91702.01 and 91702.02. This chapter establishes regulations to facilitate the beneficial use of the geothermal resource for the general welfare of the people of Imperial County and California; to protect the resource from wasteful or detrimental uses and to protect people, property, and the environment from detriments that might result from the improper use of the resource. Item "G" of Section 91701.01 requires that bonds or other forms of security acceptable to the County, in addition to that of the amount set by the CDOGGR and approved by that office, be filed with the County Planning/Building Department. Item "J" of Section 91701.01 requires an Emergency Response Plan be prepared with consultation from appropriate agencies to address possible emergencies such as blowouts, major fluid spills, and other emergencies. Item "O" of Section 91701.01 requires that project facilities shall be designed to protect surface and groundwater quality, including BMPs to contain spills of geothermal fluids, and adequate provision for handling onsite drainage. Item "EE" of Section 91701.01 requires that waste shall be disposed of in compliance with local, state, and federal regulations.

Chapter 2, Section 91702.00 Specific Standards: C) Every site shall be designed to retain the maximum amount of usable agricultural land and the site shall not interfere with the irrigation and drainage pattern, and shall comply with requirements and regulations of the IID; H) Permanent sumps, brine ponds, waste holding ponds, and any other pond, be designed and constructed to meet sound engineering standards and the regulations and requirements of the RWQCB. Chapter 2, Section 91702.01 and 91702.02 establishes drilling and production standards for geothermal projects.

The administering agency for the above regulation is the Imperial County Planning/Building Department.

The project would comply with the appropriate requirements set forth in land use code.

5.4.5.3.1 Imperial County General Plan - Conservation and Open Space Element

Goal and Objectives

Conservation of Environmental Resources for Future Generations

Goal 1: Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions.

The administering agency for the above regulation is the Imperial County Planning/Building Department.

The SSU6 Project would use less than, or an equal amount of water obtained from the IID, then is currently used for agricultural purposes. The SSU6 Project incorporates engineered grading and drainage plans to minimize grading and assure appropriate drainage of the facility. Additionally, mitigation measures including groundwater injection and engineering controls would be implemented to minimize environmental impacts to water resources. The project, as proposed, complies with the objectives of this goal.

Preservation of Biological Resources

Goal 2: Objective 2.6. - Attempt to identify, reduce, and eliminate all forms of pollution, which adversely impact vegetation and wildlife.

The administering agency for the above regulation is the Imperial County Planning/Building Department.

Mitigation measures including use of reclaimed water, groundwater injection and engineering controls would be implemented to minimize environmental impacts associated with water resources that would adversely impact vegetation and wildlife. The project, as proposed, would comply with the objectives of this goal.

Conservation of Energy Sources

Goal 6: Objective 6.4.- Minimize environmental impact of energy sources.

The administering agency for the above regulation is the Imperial County Planning/Building Department.

Mitigation measures including use of reclaimed water, groundwater injection and engineering controls would be implemented to minimize environmental impacts to water resources associated with development of geothermal energy sources. The project, as proposed, would comply with objective 6.4.

Preservation of Water Resources

Goals 8: The County will conserve, protect, and enhance the water resources in the planning area.

Objective 8.1 - Protect all bodies of water (e.g., the Salton Sea) and watercourses for their continued use and development.

Objective 8.2 - Maintain the salinity of the Salton Sea at 40,000 parts per million salinity and encourage the advantageous usage of the Salton Sea for agricultural and natural drainage, recreation, and development.

Objective 8.3 - Regulate development in or adjacent to water bodies and courses, protect water bodies and minimize property damage. Zone the areas around the Salton Sea below elevation -220 feet as open space to minimize property damage from fluctuating sea elevations.

Objective 8.4 - Ensure the use and protection of the rivers and other waterways in the County. Ensure proper drainage and provide accommodation for storm runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage.

Objective 8.5. - Protect and improve water quality and quantity for all water bodies in Imperial County.

Objective 8.6. - Eliminate potential surface and groundwater pollution through regulations as well as educational programs.

Objective 8.7. - Reclaim polluted water bodies, such as the New and Alamo Rivers and the Salton Sea, if deemed necessary.

Objective 8.8. - Ensure protection of water bodies that are important for recreational fishing.

Objective 8.10. - Discourage the use of hazardous materials in areas of the County where significant water pollution could pose hazards to humans or biological resources.

Objective 8.11. - Identify watersheds (recharge areas) and key areas for the protection of water quality and groundwater.

Objective 8.12. - Protect aquifer recharge areas including specifying minimum parcel size.

Objective 8.13. - Encourage water conservation and efficient water use among municipal and industrial water users, as well as reclamation and reuse of wastewater.

Objective 8.14. - Coordinate with the appropriate agencies for the availability of water to meet future domestic, industrial/commercial and agricultural needs.

The administering agency for the above regulation is the Imperial County Planning/Building Department.

The SSU6 Project incorporates engineered grading and drainage plans to minimize grading and assure appropriate drainage of the facility. Additionally, mitigation measures including groundwater injection and engineering controls would be implemented to minimize environmental impacts to water resources. The project, as proposed, complies with the objectives of this goal.

Imperial County General Plan - Agricultural Element

Goal 4: Maximize the inherent productivity of Imperial County's agricultural resources by ensuring future availability of adequate and affordable irrigation water and by managing water such that it is used effectively and not wasted.

Goal 5: Improve the quality of irrigation water runoff and reduce the extensive use of pesticides and other chemicals to minimize impacts to downstream water bodies, wetland habitats, and the overall environment.

Agricultural Regulations

Policy 4: Water Availability and Conservation – Policy requiring an analysis of water use impacts as part of the environmental review process.

Policy 5: Irrigation Runoff and Environmental Issues – Policy to reduce the amount of contaminants transported into the Salton Sea.

The administering agency for the above policies is the Imperial County Planning/Building Department.

The expected SSU6 Project water usage is expected to be less than, or equal to the amount currently utilized for agricultural purposes. The SSU6 Project incorporates engineered grading and drainage plans to minimize grading and assure appropriate drainage of the facility. Additionally, mitigation measures including groundwater injection and engineering controls would be implemented to minimize environmental impacts to water resources. The project, as proposed, complies with the policies and objectives of this element.

Imperial County General Plan - Water Element

Adequate Domestic Water Supply

Goal 1: The County will secure the provision of safe and healthful sources and supplies of domestic water adequate to assure the implementation of the County General Plan and the long-term continued availability of this essential resource.

The administering agency for the above goal is the Imperial County Planning/Building Department.

The SSU6 Project would not adversely impact water quality. The SSU6 Project, as proposed, would comply with the goals of this element.

Protection of Surface Waters

Goal 2: Long-term viability of the Salton Sea, Colorado River, and other surface waters in the County will be protected for sustaining wildlife and a broad range of ecological communities.

The administering agency for the above goal is the Imperial County Planning/Building Department.

The project would implement Best Management Practices to protect surface water and would comply with the goals and objectives of this element.

Protection of Water Resources from Hazardous Materials

Goal 4: The County will adopt and implement ordinances, policies, and guidelines that assure the safety of County ground and surface waters from toxic or hazardous materials and wastes.

The administering agency for the above goal is the Imperial County Planning/Building Department.

The project, as proposed, would comply with the goals and objectives of this element (see Section 5.1.4.2).

Imperial County General Plan –Geothermal/Transmission Element (Water related goals)

Goal 3: Geothermal operations will be required to efficiently utilize water.

The administering agency for the above goal is the Imperial County Planning/Building Department.

The expected SSU6 Project water usage is expected to be less than, or equal to the amount currently used for agricultural purposes. The project, as proposed, would comply with the goal of this element.

5.4.5.4 Permits Required and Permit Schedule

As previously mentioned, a required permit related to water resources is an NPDES Stormwater Industrial Permit, which is issued by the RWQCB. This permit is required prior to operation of the facility. A WMU Permit will also be required from the RWQCB to operate the brine ponds. Additionally, a Notice of Intent (NOI) to comply with the general construction NPDES permit will be filed, and the required storm water pollution plan and monitoring plan will be prepared prior to construction. An NOI will also be filed with the CDOGGR for the proposed geothermal wells. Other water resource related permits associated with CWA § 404 and § 401 are discussed in Section 5.5.

5.4.6 References

California Regional Water Quality Control Board, San Diego Region. 1994.

Water Quality Control Plan for the Colorado River Basin.

Westec Services, Inc. 1981. Final Salton Sea Anomaly, Master Environmental Impact Report.

U.S. Department of Interior and Resource Agency for California. 1974.

Table 5.4-1
MONTHLY PRECIPITATION AT EL CENTRO, COLLECTED FROM 1948 TO 2000

Monthly Average Precipitation (in.)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.36	0.244	0.170	0.051	0.018	0.0	0.072	0.281	0.243	0.261	0.143	0.246

Table 5.4-2
ANNUAL PRECIPITATION FOR EL CENTRO FROM STORM SEASON 1990-91 TO 1998-99

Annual Precipitation (in.)								
90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99
2.8	5.5	7.7	1.7	2.7	0.3	2.3	2.4	1.0

Table 5.4-3
MEAN MONTHLY FLOWS (cfs) FOR NEW AND ALAMO RIVER

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alamo River, USGS gauge 10254670	531	602	823	953	844	706	702	708	727	780	667	552
New River, USGS gauge 10255550	598	681	823	729	664	593	597	614	619	642	564	548

Table 5.4-4
RO REJECT AND IID CANAL WATER QUALITY

Constituent	Concentration (mg/L-ion)	
	RO Reject	IID Canal Water
Calcium	261	67
Magnesium	95	24
Sodium	253	72
Potassium	13.5	4
Barium	0.4	0.1
Strontium	3.9	1.0
Bicarbonate	450	131
Sulfate	847	216
Chloride	248	68
Nitrate	0.8	0.3
Silica	48	13
TDS (mg/L TDS)	2221	600
pH (pH units)	7.5	7.5

Table 5.4-5
SUMMARY OF LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Jurisdiction	LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
5.4 Water Resources					
Federal					
	Clean Water Act of 1977 (including 1987 amendments) §402, 33 USC §1342; 40 CFR Parts 122 - 136	Regulates discharges of wastewater and storm water to protect waters of the U.S. Storm water discharges associated with industrial activity require an NPDES permit.	Section 5.4.5.1	USEPA, Region IX and the RWQCB Colorado River Basin Region 7	1, 5
	Clean Water Act §311; 33 USC §1321; 40 CFR Parts 110, 112, 116, 117	Reporting of any prohibited discharge of oil or hazardous substance.	Section 5.4.5.1, Section 5.1.4.	USEPA, Region IX; RWQCB Colorado River Basin Region 7, and the California Office of Emergency Services (OES).	1, 5, 7
	Clean Water Act § 401, Waiver of Discharge Requirements	Obtain certification that discharges will comply with Clean Water Act.	Section 5.4.5.1	RWQCB Colorado River Basin Region 7	5
	Clean Water Act §404; Clean Water Act Regulatory Programs; Final Rule 33 CFR Parts 323 and 328	Obtain nationwide permits, as needed.	Section 5.4.5.1	US Army Corps of Engineers.	2
State					
	California Safe Drinking Water and Toxics Enforcement Act, Chapter 6.6 (CH&SC 25249.5 et seq.)	Prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity.	Section 5.4.5.2	RWQCB Colorado River Basin Region 7	5
	California Constitution, Article 10 § 2	Avoid the waste or unreasonable uses of water. Regulates methods of use and methods of diversion of water.	Section 5.4.5.2	RWQCB Colorado River Basin Region 7	5
	State Water Resources Control Board, Resolution 75-58 (June 18, 1975)	Comply with policy on the use and disposal of inland water used for power plant cooling.	Section 5.4.5.2	CEC, RWQCB Colorado River Basin Region 7	3, 5
	California Porter-Cologne Water Quality Control Act; Cal. Water Code, Division 7. Water Quality § 13000-14957.	Siting, operation and closure of waste disposal; requires submission of waste and site classification for waste discharge permit.	Section 5.4.5.2	CEC, RWQCB-Colorado River Basin Region 7, State Water Resources Control Board.	3, 5, 6
	California Water Code Division 7, Chapter 4, Article 4, §§13260 – 13269.	Requires filing a report of waste discharge and provides for issuance of waste discharge requirements with respect to any waste that can affect the quality of the waters of the state.	Section 5.4.5.2	RWQCB Colorado River Basin Region 7	5

Table 5.4-5 (continued)
SUMMARY OF LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Jurisdiction	LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
5.4 Water Resources					
	California Water Code Division 7, Chapter 4, Article 4 §§ 13271 – 13272; 23 CCR §§ 2250 – 2260.	Reporting of releases of reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products.	Section 5.4.5.2	RWQCB Colorado River Basin Region 7, California Office of Emergency Services	5, 7
	California Public Resources Code § 25523(a).	Provisions relating to the manner in which the proposed facility is to be designed, sited, and operated to protect environmental quality and assure public health and safety.	Section 5.4.5.2	CEC	3
	California Environmental Quality Act, Public Resources Code, §21000 et seq., CEQA Guidelines, 14 CCR §15000 et seq., Appendix G	Guidelines to determine whether the considered project would cause significant impacts to water resources.	Section 5.4.5.2	CEC	3
	CCR, Title 14 Division 2, Subchapter 4; Statewide Geothermal Regulations Sections 1931 and 1932; Sections 1937.1	Sets forth rules and regulations governing the geothermal regulation program of the CDOGGR. Requires filing of a NOI prior to drilling, establishes reporting requirements.	Section 5.4.5.2	CDOGGR	8
	CCR, title 27, Division 2, Subdivision 2; Consolidated Regulations for Treatment, Storage, Processing, or Disposal of subject waste	Sets forth rules and regulations governing WMUs. Requires that WMUs must comply with SWRCB design requirements and RWQCB WDR requirements.	Section 5.4.2.1	RWQCB Colorado River Basin Region 7	5
	California Public Resources Code, Division 3, Chapter 4, Sections 3700-3776	Requires that geothermal wells used in the production of geothermal resources be drilled, operated, maintained, and abandoned in a manner to protect life, health, property, and the public welfare. Requires filing NOI prior to drilling a production or injection well, along with appropriate fee and bond	Section 5.4.5.2	CDOGGR	8
Local	**Imperial County Codified Ordinance Site Design Standards**				
	Imperial County Land Use Code, Title 9, Division 3, Chapter 1, Sections 90301.02	Regulations pertaining to surface water drainage.	Section 5.4.5.3	Imperial County Planning/Building Department and Department of Public Works	9
Imperial County Codified Ordinance Building, Sewer, and Grading Regulations					
	Imperial County Land Use Code Title 9, Division 10, Chapter 10, Sections 91010.01 and 91010.02	Regulations pertaining to construction permits. Excavations will not extend below water table.	Section 5.4.5.3	Imperial County Planning/Building Department	9

Table 5.4-5 (continued)
SUMMARY OF LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Jurisdiction	LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
5.4 Water Resources					
Imperial County Codified Ordinance – Flood Damage Prevention					
	Imperial County Land Use Code Title 9, Division 16, Chapter 3, Section 91603.00; Chapter 4, Section 91604.00	Development Permit required for development within any area of special flood hazards.	Section 5.4.5.3	Imperial County Planning/Building Department, Floodplain Administrator	9
Imperial County Codified Ordinance – Geothermal					
	Imperial County Land Use Code Title 9, Division 17, Chapter 1, Section 91701.01; Section 91701.05; Chapter 2, Section 91702.00; Section 91702.01 and 91702.02	Requirements pertaining to wells, engineered ponds, surface and groundwater quality protection; waste discharge.	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Goal 1	Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions.	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Goal 2; Objective 2.6	Attempt to identify, reduce, and eliminate all forms of pollution, which adversely impact vegetation and wildlife.	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Goal 6; Objective 6.4	Minimize environmental impact of energy sources.	Section 5.4.5.3	Imperial County Planning/Building Department	9
Imperial County General Plan, Conservation and Open Space Element					
	Goal 8	The County will conserve, protect, and enhance the water resources in the planning area.	Section 5.4.5.3	Imperial County Planning/Building Department	9
Imperial County General Plan, Agricultural Element					
	Goal 4	Maximize the inherent productivity of Imperial County's agricultural resources by ensuring future availability of adequate and affordable irrigation water and by managing water such that it is used effectively and not wasted	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Goal 5	Improve the quality of irrigation water runoff and reduce the extensive use of pesticides and other chemicals to minimize impacts to downstream water bodies, wetland habitats and the overall environment.	Section 5.4.5.3	Imperial County Planning/Building Department	9

Table 5.4-5 (continued)
SUMMARY OF LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Jurisdiction	LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
5.4 Water Resources					
	Policy 4	Water Availability and Conservation – Policy requiring an analysis of water use impacts as part of the environmental review process	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Policy 5	Irrigation Runoff and Environmental Issues – Policy to reduce the amount of contaminants transported into the Salton Sea.	Section 5.4.5.3	Imperial County Planning/Building Department	9
Imperial County General Plan, Water Element					
	Goal 1	The County will secure the provision of safe and healthful sources and supplies of domestic water adequate to assure the implementation of the County General Plan and the long-term continued availability of this essential resource.	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Goal 2	Long-term viability of the Salton Sea, Colorado River, and other surface waters in the County will be protected for sustaining wildlife and a broad range of ecological communities.	Section 5.4.5.3	Imperial County Planning/Building Department	9
	Goal 4	The County will adopt and implement ordinances, policies, and guidelines that assure the safety of County ground and surface waters from toxic or hazardous materials and wastes	Section 5.4.5.3, Section 5.1.4.2	Imperial County Planning/Building Department	9
Imperial County General Plan, Geothermal/Transmission Element					
	Goal 3	Geothermal operations will be required to efficiently utilize water.	Section 5.4.5.3	Imperial County Planning/Building Department	9

Table 5.4-6
AGENCY CONTACT LIST FOR
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL					
1	U.S. Environmental Protection Agency, Region IX Mr. Gerald Rios 75 Hawthorne Street San Francisco, California 94105 (415) 744-1254	**2**	U.S. Army Corps of Engineers Tom Cavanaugh 1325 J Street Regulatory Branch, 14th Floor, Room 1480 Sacramento, CA 95814-2922 (916) 557-5250		
STATE					
3	California Energy Commission Mr. Paul Richins 1516 9th Ave. Sacramento, CA 95814 (916) 654-4074	**4**	California Department of Conservation Luree Stetson, Acting Chief Division of Land Resource Protection 801 K Street M.S. 24-01 Sacramento, CA 95814 (916) 324-0850	**5**	California Regional Water Quality Control Board, Colorado River Basin Region 7 BASIN PLANNING Supervisor - Joan Stormo 573-720 Fred Waring Drive, Suite 100 Palm Desert, CA 92260 Phone: (760) 346-7491
6	California Department of Water Resources 1001 I St. Sacramento, CA 95814 Connie Anderson (916) 341-5800.	**7**	Office of Emergency Services, Region 6 Southern Region 1350 Front Street, Suite 2041 San Diego, CA 92101 (619) 525-4287 (619) 525-4943 FAX	**8**	California Division of Oil and Gas, Geothermal Resources 1699 W. Main St., Ste E El Centro, CA 92243 Mr. Mike Woods (760) 353-9900
LOCAL					
9	Imperial County Planning/Building Department 939 Main Street El Centro, CA Jurg Heuberger (760) 482-4236				

ATTACHMENT 1

Attachment 1 is stored under W:\5800161046\Subproj03\02100 -- Final\02100-a-s5-4--Attachment 1.doc